ARCHIVES OF

Biochemistry and Biophysics

Volume 279
1990

ACADEMIC PRESS, INC.
Harcourt Brace Jovanovich, Publishers
San Diego New York Boston
London Sydney Tokyo Toronto

Copyright © 1990 by Academic Press, Inc.

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (27 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1990 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0003-9861/90 $3.00

MADE IN THE UNITED STATES OF AMERICA

This journal is printed on acid-free paper.

CONTENTS OF VOLUME 279

Number 1, May 15, 1990

INVITED PAPER

Vanadate-Stimulated Oxidation of NAD(P)H in the Presence of Biological Membranes and Other Sources of O_2^- *Stefan I. Liochev and Irwin Fridovich* 1

BIOLOGICAL OXIDATIONS, BIOENERGETICS, AND P450 REACTIONS

Formation of Diastereoisomeric 3a-Hydroxypyrroloindoles from a Tryptophan Residue Analog Mediated by Iron(II)-EDTA and L-Ascorbate *Koji Uchida, Naoki Enomoto, Koichi Itakura, and Shunro Kawakishi* 14

Mn-Dependent Peroxidase from the Lignin-Degrading White Rot Fungus *Phlebia radiata* *Eija Karhunen, Anne Kantelinen, and Marja-Leena Niku-Paavola* 25

Purification, Partial Characterization, and Possible Role of Catalase in the Bacterium *Vitreoscilla* *Jacquelyn J. Abrams and Dale A. Webster* 54

Multiple Isoelectric Variants of Copper, Zinc-Superoxide Dismutase from Rat Liver *Sumio Yano* 60

Expression in *Escherichia coli* of Rat Liver Cytosolic Glutathione *S*-Transferase Yc cDNA *Su-Er W. Huskey, Regina W. Wang, David L. Linemeyer, Cecil B. Pickett, and Anthony Y. H. Lu* 116

Lignin Peroxidase H2 from *Phanerochaete chrysosporium:* Purification, Characterization and Stability to Temperature and pH *Helfried Tuisel, Robert Sinclair, John A. Bumpus, William Ashbaugh, Barry J. Brock, and Steven D. Aust* 158

Selective Detection of mRNA Forms Encoding the Major Phenobarbital Inducible Cytochromes P450 and Other Members of the P450IIB Family by the RNAse A Protection Assay *Thomas Friedberg, Markus A. Grassow, and Franz Oesch* 167

Altered Functional Activity and Anoxic Tolerance in Diabetic Rat Isolated Atria *Fatemeh Savabi and Arlene Kirsch* 183

Lipid Regulation of Bovine Cytochrome $P450_{11\beta}$ Activity *David W. Seybert* 188

ENZYME MECHANISMS AND METABOLIC REGULATION

Synergism between Platelet-Activating Factor and Diacylglycerol in the Induction of Superoxide Anion Production in Guinea Pig Polymorphonuclear Leukocytes *Toshiaki Ohtsuka, Masanori Hiura, Masaki Ozawa, Naoki Okamura, and Sadahiko Ishibashi* 21

Presence of Ectonucleotidases in Cultured Chromaffin Cells: Hydrolysis of Extracellular Adenine Nucleotides *Magdalena Torres, Jesús Pintor, and M. Teresa Miras-Portugal* 37

Insulin Release in Pancreatic Islets by a Glycolytic and a Krebs Cycle Intermediate: Contrasting Patterns of Glyceraldehyde Phosphate and Succinate *Michael J. MacDonald and Leonard A. Fahien* 104

Purification and Characterization of Two Ribonucleases from Human Erythrocytes: Immunological and Enzymological Comparison with Ribonucleases from Human Urine *Toshihiro Yasuda, Keiko Mizuta, and Koichiro Kishi* 130

Responsibility of $tRNA^{Ile}$ for Spermine Stimulation of Rat Liver Ile-tRNA Formation *Zhaohui Peng, Kuniko Kusama-Eguchi, Shin-ichi Watanabe, Kiyoshi Ito, Kazuko Watanabe, Yoshio Nomoto, and Kazuei Igarashi* 138

Inhibition of Platelet Aggregation by *S*-(1,2-Dicarboxyethyl)glutathione, Intrinsic Tripeptide in Liver, Heart, and Lens *Seiji Tsuboi, Masayo Ohnaka, Shinji Ohmori, Takahiro Sakaue, Kazumi Ogata, Toshifumi Itano, and Osamu Hatase* 146

GENETIC STRUCTURE AND FUNCTION

Cloning and Characterization of Two Alternatively Spliced Rat α-Amidating Enzyme cDNAs from Rat Medullary Thyroid Carcinoma
Arthur H. Bertelsen, Gary A. Beaudry, Elizabeth A. Galella, Barry N. Jones, Martha L. Ray, and Nozer M. Mehta 87

GLYCOPROTEINS, GLYCOLIPIDS, AND EXTRACELLULAR MATRICES

Interferon-γ Alters Expression of Endothelial Cell-Surface Glycosphingolipids
Baiba Kurins Gillard, Mary A. Jones, Ann A. Turner, Dorothy E. Lewis, and Donald M. Marcus 122

MEMBRANE RECEPTORS, TRANSPORT, AND INTRACELLULAR SIGNALS

Persistent Ca^{2+}-Induced Activation of Erythrocyte Membrane Ca^{2+}-ATPase Unrelated to Calpain Proteolysis
Basil D. Roufogalis, Izabela Brzuszczak, Arthur D. Conigrave, You-Han Xu, Cheryl L. Machan, and Kevin K. W. Wang 78

Lactogen-Induced Protein Phosphorylation in Nb2 Cells *Lori J. Kornberg and J. P. Liberti* 109

PLANT MOLECULAR BIOLOGY, BIOCHEMISTRY, AND PHOTOSYNTHESIS

Modulation of Spinach Chloroplast NADP–Glyceraldehyde-3-phosphate Dehydrogenase by Chaotropic Anions *Ricardo A. Wolosiuk and Mariana Stein* 70

Proteolytic Degradation of Ferredoxin–NADP Reductase during Purification from Spinach
Masateru Shin, Maki Tsujita, Hiroshi Tomizawa, Naoko Sakihama, Kaeko Kamei, and Reiko Oshino 97

PROTEIN STRUCTURE AND FUNCTION

Unusual Stability Properties of a Reptilian Ceruloplasmin
Giovanni Musci, Marina Carbonaro, Angelo Adriani, Amalia Lania, Antonio Galtieri, and Lilia Calabrese 8

Subunit Level Crosslinking of Rabbit Muscle Pyruvate Kinase by *o*-Phthaldialdehyde
Selma Yilmaz and Inci Özer 32

Characterization of a Novel α-Class Anionic Glutathione *S*-Transferase Isozyme from Human Liver
Sharad S. Singhal, Sanjiv Gupta, Hassan Ahmad, Rajendra Sharma, and Yogesh C. Awasthi 45

Amino Acid Sequence of Spinach Chloroplast Fructose-1,6-bisphosphatase
Frank Marcus and Peter B. Harrsch 151

Structural and Ion-Binding Properties of an S100b Protein Mixed Disulfide: Comparison with the Reappraised Native S100b Protein Properties *Yves Mely and Dominique Gerard* 174

Evidence that Chemical Modification of a Positively Charged Residue at Position 189 Causes the Loss of Catalytic Activity of Iron-Containing and Manganese-Containing Superoxide Dismutases
V. W. F. Chan, M. J. Bjerrum, and C. L. Borders, Jr. 195

Number 2, June 1990

COMMUNICATION

Free Radical-Mediated Chain Oxidation of Low Density Lipoprotein and Its Synergistic Inhibition by Vitamin E and Vitamin C *Keizo Sato, Etsuo Niki, and Hiroyuki Shimasaki* 402

BIOLOGICAL OXIDATIONS, BIOENERGETICS, AND P450 REACTIONS

Occurrence of 9- and 13-Keto-octadecadienoic Acid in Biological Membranes Oxygenated by the Reticulocyte Lipoxygenase *H. Kühn, J. Belkner, R. Wiesner, and L. Alder* 218

Oxygen Toxicity in Control and H_2O_2-Resistant Chinese Hamster Fibroblast Cell Lines
Douglas R. Spitz, James H. Elwell, Yi Sun, Larry W. Oberley, Terry D. Oberley, Shannon J. Sullivan, and Robert J. Roberts 249

Endocytosis-Independent Uptake of Liposome-Encapsulated Superoxide Dismutase Prevents the Killing of Cultured Hepatocytes by *tert*-Butyl Hydroperoxide
Dai Nakae, Hitoshi Yoshiji, Toshihiro Amanuma, Tetsuo Kinugasa, John L. Farber, and Yoichi Konishi 315

ENZYME MECHANISMS AND METABOLIC REGULATION

Uncompetitive Inhibition of Monoterpene Cyclases by an Analog of the Substrate Geranyl Pyrophosphate and Inhibition of Monoterpene Biosynthesis *in Vivo* by an Analog of Geraniol
Carl J. Wheeler, Charles A. Mihaliak, and Rodney Croteau 203

Regulation of Poly(ADP–ribose) Polymerase mRNA Levels during Compensatory and Mitogen-Induced Growth of Rat Liver
Marta Menegazzi, Alessandra Carcereri De Prati, Giovanna Maria Ledda-Columbano, Amedeo Columbano, Kazuhiko Uchida, Masanao Miwa, and Hisanori Suzuki 232

Increasing Effect of Vanadate on Lipoprotein Lipase Activity in Isolated Rat Fat Pads
Misaki Sera, Katsuhiro Tanaka, Tetsuo Morita, and Hiroshi Ueki 291

Interaction and Inhibition of Acetylcholinesterase from *Electrophorus electricus* by Nitrosamines
Beryl Shuttleworth, Diane L. de Villiers, and Chris G. Whiteley 338

Effect of Electron Withdrawing Substituents on Substrate Hydrolysis by and Inhibition of Rat Neutral Endopeptidase 24.11 (Enkephalinase) and Thermolysin
Robert C. Bateman, Jr., Gerry Rodriguez, Jayanthi Vijayaraghavan, and Louis B. Hersh 355

GENETIC STRUCTURE AND FUNCTION

3T3-L1 Adipocyte Glucose Transporter (HepG2 Class): Sequence and Regulation of Protein and mRNA Expression by Insulin, Differentiation, and Glucose Starvation
Brent C. Reed, Debra Shade, Frida Alperovich, and Ming Vang 261

Glucocorticoid Repression and Basal Regulation of the Epoxide Hydrolase Promoter
Peter A. Bell, Charles N. Falany, Patricia McQuiddy, and Charles B. Kasper 363

GLYCOPROTEINS, GLYCOLIPIDS, AND EXTRACELLULAR MATRICES

Carbohydrate-Binding Specificity of the Daffodil (*Narcissus pseudonarcissus*) and Amaryllis (*Hippeastrum hybr.*) Bulb Lectins
Hanae Kaku, Els J. M. Van Damme, Willy J. Peumans, and Irwin J. Goldstein 298

The Effect of Peptide Deletions on the Glycosylation of Murine Immunoglobulin M Heavy Chains
Elaine M. Finley, Neil F. Rebbe, and Scot Hickman 395

LIPIDS AND LIPID MEDIATORS

Conversion of Dihomo-γ-Linolenic Acid to Mono- and Dihydroxy Acids by Potato Lipoxygenase: Evidence for the Formation of 8,9-Leukotriene A_3 *C. Channa Reddy, Christina Bertler, and Sven Hammarström* 211

NAD^+-Dependent 15-Hydroxyprostaglandin Dehydrogenase: Immunochemical Characterization of the Lung Enzyme from Pregnant Rabbits
Richard T. Okita, Allan R. Sinning, Janice Rice Okita, Hsin-Hsiung Tai, Roger R. Markwald, and Jo M. Bergholte 242

MEMBRANE RECEPTORS, TRANSPORT, AND INTRACELLULAR SIGNALS

Effects of Compound 48/80 on the Ca^{2+} Release by Reversal of the Ca^{2+} Pump and by the Ca^{2+} Channel of Sarcoplasmic Reticulum Membranes *M. G. P. Vale* 275

Properties of a Novel Nitric Oxide-Stimulated ADP-Ribosyltransferase
Bernhard Brüne and Eduardo G. Lapetina 286

Sarcolemmal Carbonic Anhydrase in Red and White Rabbit Skeletal Muscle *Petra Wetzel and Gerolf Gros* 345

Lactate Transport Is Mediated by a Membrane-Bound Carrier in Rat Skeletal Muscle Sarcolemmal Vesicles
David A. Roth and George A. Brooks 377

Lactate and Pyruvate Transport Is Dominated by a pH Gradient-Sensitive Carrier in Rat Skeletal Muscle Sarcolemmal Vesicles
David A. Roth and George A. Brooks 386

PHYSICAL BIOCHEMISTRY

$C_{(13)}$-Substituted Bacteriorhodopsin Analogs
Svetlana V. Danshina, Alexander L. Drachev, Lel A. Drachev, Sergey V. Eremin, Andrey D. Kaulen, Lyubov V. Khitrina, and Boris I. Mitsner 225

PLANT MOLECULAR BIOLOGY, BIOCHEMISTRY, AND PHOTOSYNTHESIS

Processing of Precursor Proteins by Plant Mitochondria
James Whelan, Patrick O'Mahony, and Matthew A. Harmey 281

Purification and Characterization of Acetylcoenzyme A: Deacetylvindoline 4-*O*-Acetyltransferase from *Catharanthus roseus*
R. Power, W. G. W. Kurz, and V. De Luca 370

PROTEASES, PROTEIN TURNOVER, AND POST-TRANSLATIONAL PROCESSING

Multiple Sites of Methyl Esterification of Calmodulin in Intact Human Erythrocytes
Irene M. Ota and Steven Clarke 320

PROTEIN STRUCTURE AND FUNCTION

Purification and Characterization of Mouse Liver Xanthine Oxidase
Giovanna Carpani, Marco Racchi, Pietro Ghezzi, Mineko Terao, and Enrico Garattini 237

Conformations of *N*-(2-Fluorophenyl)-*N*-phenylcarbamoyl-α-chymotrypsin
Maria Kairi, Nancy L. Keder, and J. T. Gerig 305

C-Terminal Cleavage of Tubulin by Subtilisin Enhances Ring Formation
V. Peyrot, C. Briand, and J. M. Andreu 328

AUTHOR INDEX FOR VOLUME 279 406

NOTICE

The Subject Index for Volume 279 will appear in the December 1990 issue as part of a cumulative index for the year 1990.